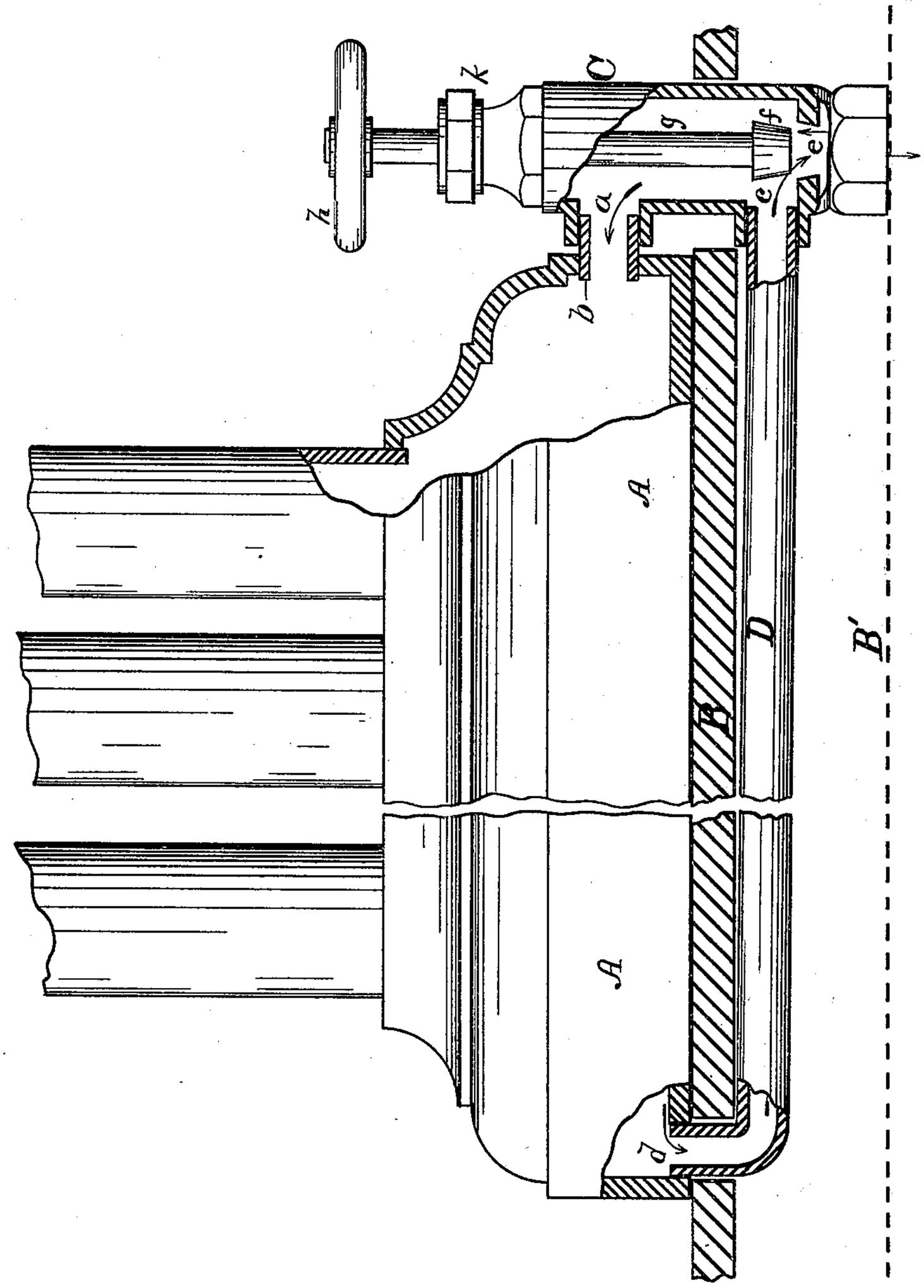
E. HAYS.

Steam Valve for Radiators.

No. 231,039. Patented Aug. 10, 1880.



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UNITED STATES PATENT OFFICE.

EDWARD HAYS, OF ROCHESTER, NEW YORK.

STEAM-VALVE FOR RADIATORS.

SPECIFICATION forming part of Letters Patent No. 231,039, dated August 10, 1880.

Application filed February 9, 1880.

To all whom it may concern:

Be it known that I, EDWARD HAYS, of Rochester, in the county of Monroe and State of New York, have invented a new and useful Improvement in Steam-Valves for Radiators, which improvement is fully set forth in the following specification and accompanying drawing.

The object of my invention is to produce a valve for steam-radiators by means of which steam may be admitted into the radiator through one opening in the side of the valve-chamber, and the water from the condensed steam returned through a pipe leading from the bottom at a distant part of the radiator into the valve-chamber through another opening in the side of the same, thus securing a free circulation of the steam within the radiator and dispensing with one valve and extra pipe, commonly used.

The drawing represents a side elevation of a part of a steam-radiator with my improved valve and pipe connection attached, the same being partially sectioned.

Referring to the drawing, A represents a radiator, of any suitable make or form, resting upon a floor, B. C is a steam and water valve, being placed partly above and partly below the floor, as shown.

Near the upper end of the valve-chamber is an opening, *a*, which communicates with the base of the radiator through a connecting-nipple, *b*. Near the bottom of the chamber containing the valve is another opening, *c*, beneath the floor and in line with the other opening, *a*.

D is a pipe beneath the floor under the radiator, having one end turned upward through the floor and entering an orifice, *d*, in the bottom plate of the base of the radiator, the other end of which pipe descends and enters the opening *c* of the valve-chamber, as shown. This pipe D is designed to convey away the water resulting from the condensation of steam within the radiator, which water is discharged into the valve-chamber above the valve-opening *e*, and descends to the boiler through the pipe connecting said boiler with the valve, up through which pipe steam also flows to the radiator.

The valve-opening *e* is merely a conical opening through a diaphragm, and the valve *f* a conical plug fitting said opening at the end of a stem, *g*, reaching down through a stuffing-box, *k*.

The stem *g* is rotated by means of an ordinary hand-wheel, *h*, and is provided with a screw-thread, so as to move up or down as the hand-wheel is turned one way or the other, these parts being those in common use in similar valves.

Heretofore some radiators have been put up with a valve at each end of the radiator, with an independent line of pipe connecting the boiler with each valve, one line of pipe and valve to convey steam to the radiator and the other to convey water back to the boiler. Others have been put up with a single valve and line of pipe, in which the steam is allowed to flow from the valve to the radiator and the water from the radiator to the valve, through the same opening in the side of the valve-chamber. The former manner of putting up radiators is objectionable, as it requires two valves and two separate lines of pipe connecting the radiator and boiler, which, if the former be separated some distance from the latter, adds materially to the cost; and the latter, although requiring but one valve and one line of pipe, is objectionable, as the inflow of steam to the radiator tends to crowd the water back and heap it up in distant parts of the same, which water seals the passages and prevents a free circulation of the steam through the radiator, on account of which large patches of the surface of the radiator remain cold and radiate little or no heat.

By making an opening at *d*, opposite to the inflow *a*, the water driven back by the advancing steam finds easy escape and does not accumulate within the radiator to obstruct the circulation of the steam or render any part of the radiator useless; and by connecting said opening *d*, by means of a pipe, D, with the chamber of the valve C, as shown, the valve and whole line of pipe commonly used to connect the opening *d* with the boiler is dispensed with.

The opening *e* is made larger than the opening *a*, to admit of an easy flow of the water downward through the former while the steam ascends to the radiator.

It is not essential that the pipe D be placed below the floor, as shown, but the whole may be raised a few inches above the floor, in which case the dotted line B′ may represent the floor upon which the whole apparatus stands.

I do not claim, broadly, a chamber over a steam-valve having an outlet and an inlet opening through the wall of the chamber over the valve, such construction being old.

What I claim as my invention, and wish to secure by Letters Patent, is—

In combination with a radiator, A, a valve, C, provided with openings *a* and *c*, substantially as described, and a pipe, D, connecting an opening, *d*, in the radiator with the lower opening, *c*, of the valve, substantially as described and shown.

EDWARD HAYS.

Witnesses:
E. B. WHITMORE,
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